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ABSTRACT

In 1975 the first women ROTC cadets attended advanced camp at Fort Bragg, N.C. During the six-week summer camp, 392 male and 83 female cadets (about to enter their senior year in college) were rated on leadership by their platoon NCO and on leadership and personal characteristics by their platoon officer evaluator. Cadets were also rated by their peers and scores on physical tests were compared. The results were analyzed to investigate possible sex bias. The platoon officer evaluators rated female cadets lower than male cadets on leadership performance. Ratings by NCO evaluators did not differ for male and female cadets. While female cadets scored lower than men on the most physically demanding exercises, they scored as well or better on exercises emphasizing cognitive and motivational abilities. Also, females systematically were rated lower by both male and female peers on a leader preference dimension. The findings identified a number of factors which limited the usefulness of summer camp ratings on ROTC cadets in 1975. First, sex differences in training programs may well have increased rather than eliminated initial differences in competence. Second, peer rating instructions may have operated to the disadvantage of females. Since 1975, sex differences in summer camp training have been removed essentially and peer rating instructions modified to provide a more accurate assessment of female performance. (Author/LMS)

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Technical Paper 293

WOMEN AND ROTC SUMMER CAMP, 1975

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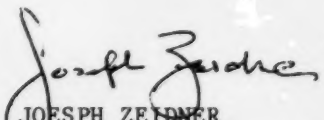
FOREWORD

The Personnel Accession and Utilization Technical Area of the Army Research Institute for the Behavioral and Social Sciences performs research in recruiting, selection, classification, and career development of Army officer and enlisted personnel. Research in officer career programs includes support of the Officer Personnel Management System (OPMS) and development of officer achievement measures and rating techniques. ROTC cadets' performance and their leadership potential are evaluated during ROTC Advanced Summer Camp with measures and rating techniques which ARI helped develop.

In 1975 the first women ROTC cadets attended Advanced Camp. This report analyzes cadet scores and ratings obtained in 1975 to investigate possible sex bias. Preliminary and collateral analyses from this project are reported in ARI Research Memorandums 76-22, 77-6, and 78-1.

Research was done under Army Project 2Q763731A768, in response to requirements of the Office Deputy Chief of Staff, ROTC, of the Training and Doctrine Command (TRADOC), with the cooperation of the ROTC training cadre at Fort Bragg, N. C., and the assistance of LTC Clark Bailey in data collection.



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WOMEN AND ROTC CAMP, 1975

BRIEF

Requirement:

To analyze measures of ROTC Summer Camp performance in the first group of cadets where women were trained much the same as men, and to determine whether evaluation procedures--later used in decisions concerning Regular Army and Reserve commissioning, Branch assignment, and training status--are fair to cadets of both sexes.

Procedure:

During the 6-week Summer Camp in 1975, 392 male and 83 female cadets (about to enter their senior year) were rated on leadership by their platoon NCO, and on leadership and personal characteristics by their platoon officer evaluator. Other measures obtained were peer ratings and scores on Orienteering, Military Stakes Test, and Field Problems Test. On performance variables, differences between means were tested with the t-test. Differences between correlation coefficients were computed for possible differences in rating processes or schemas applied to male and female cadets. Peer ratings for four rater/ratee groups were subjected to a 2 x 2 (sex of rater by sex of ratee) analysis of variance (unweighted means).

Findings:

Female cadets were rated lower than male cadets by their platoon officer evaluator and scored lower than males on Orienteering, a set of three physically demanding exercises. No differences were found on ratings of leadership by the NCO evaluator. Female cadets were higher on the Military Stakes Test and equal to males on the Field Problems Test, both measures emphasizing cognitive abilities and motivation. Difference in peer ratings by sex of ratee was significant, female cadets being rated lower than male cadets by both male and female raters.

Utilization of Findings:

The findings identified a number of factors which limited the operational usefulness of Summer Camp ratings on ROTC cadets in 1975. First, sex differences in training programs may well have increased rather than eliminated initial differences in

competence. Secondly, peer rating instructions may have operated to the disadvantage of females. Since 1975, sex differences in Summer Camp training have been removed essentially and peer rating instructions modified to provide a more accurate assessment of female performance. While these modifications have removed the most apparent problems in evaluating females at Advanced Camp, male scores continue to exceed female scores on most Advanced Camp measures. Continued effort is needed to identify and correct biases which contribute to the differences.

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WOMEN AND ROTC CAMP, 1975

Title VII of the Civil Rights Act of 1964 prohibits unfair discrimination on the basis of race, color, sex, or religion. While there is some question as to the extent of change in employment practices brought about by Title VII, women do have increased opportunities to enter non-traditional occupations. The Army, as an institution, has many such occupations.

While women are not new in the Army (see Treadwell, 1954, for a history of women in the Army), the extent of their involvement has changed recently. Of significant importance is the fact that the Women's Army Corps (WAC) is being terminated as a separate agency.

Male and female officers now will be accessioned through the same channels--ROTC, U.S. Military Academy, and Officer Candidate School. Due to legal restrictions, women will be assigned differently from men, i.e., no combat jobs, but with identical career patterns.

As a first step toward this eventuality, ROTC opened its doors to women in 1973. In the summer of 1975, the first group of female cadets attended the ROTC Advanced Summer Camp and trained in a simulated military environment in much the same manner as male cadets.

The present paper examines scores received by male and female cadets during one of these Summer Camps. Nine performance scores were collected, as well as peer rating scores. All variables were analyzed according to sex of cadet. A special analysis was performed on peer rating scores because (1) they are heavily weighted in the Leadership Potential Index (LPI), discussed below; (2) they have a long tradition of use in the military; and, (3) they have a long research history in the military.

First, a few words describing the summer camp are in order. Cadets assemble in early June and are randomly assigned to battalions, companies, and platoons. The only restrictions on these random assignments are that no cadet from the same college be assigned to the same platoon as another cadet from that college, and, in those platoons where assigned, the women be assigned in pairs.

While cadets received much of the same training, females were not allowed to: serve as crew members in any capacity on tanks or field artillery weapons; participate in offensive combat operations or offensive tactical training; train with bayonets, pugil stick, hand grenades, silent weapons, or hand-to-hand combat; march farther than six miles or carry more than 25 pounds. On the other hand, females were allowed to: carry and fire weapons for familiarization or qualification on a voluntary basis; observe practical exercises or demonstrations for orientation and informational value; participate fully in defensive tactical training; receive the female confidence course as deemed appropriate; participate in activities on a reduced level commensurate with their physical abilities; and, receive the female physical training program of instruction.

In sum, female cadets received 54 hours of separate and different training. Most of the training they did not receive dealt with offensive tactics, per TRADOC Reg. 145-1. Male cadets were garrisoned with their own company. Female cadets had their own garrison company. Women's barracks were separate from and off-limits to male cadets.

During the course of the six-week camp, cadets were evaluated on a variety of dimensions. Some evaluations were objective while others depended upon qualitative ratings made by the cadre. Still other scores depended on peer ratings.

Performance during camp is considered in the determination of Regular Army (RA) commissions, as well as branch assignments, reserve commissions, and training status.

Cadets are rank-ordered for RA commissions, based in part on the LPI, which is a weighted index of various scores and ratings received during camp. Fifty percent of the LPI is composed of ratings made by the Platoon Officer Evaluator (POE), 25% of field problems, and 25% of peer ratings.

Peer ratings have a long tradition of use in the military in evaluating leadership potential and ability (Hollander, 1965; Stodgill, 1974). The basic paradigm involves each group member estimating (either by ratings, rankings, or nominations) the leadership potential or ability (or other specified characteristic) of all other group members. This technique has been shown to be valid (Hollander, 1965; Lindzey and Byrne, 1968), reliable (Hollander, 1957), unaffected by friendship factors (Hollander, 1956; Wherry and Fryer, 1949), stable across changing groups (Gordon and Medland, 1965), and valid in predicting future performance even when the groups are established for short periods of time (Medland and Olans, 1964). Most of these studies used white males for subjects, however, and there are data to to indicate that differences in peer ratings due to race of the rater and ratee may be due, in part, to bias (Cox and Krumboltz, 1958; deJung and Kaplan, 1962; Mohr and Reidy, 1978). Also, there are data available suggesting that in Officer Basic Course, women are rated lower than their male peers on leadership potential by both males and females, and that, regardless of training program, combat orientation, skills and interests are primary in these evaluations (Mohr and Downey, 1978. It is still an empirical issue whether sex of rater and/or ratee effects peer ratings given by college students attending Advanced Summer Camp.

METHODS

SAMPLE

Subjects were 392 male and 83 female cadets attending ROTC Advanced Summer Camp at Ft. Bragg, N.C. These cadets are college students about to enter their senior year. They are representative of the first ROTC region, generally.

PROCEDURES

Performance variables included evaluations based on overall camp leadership activities made by cadre (officers and NCOs) and objective measures of specific performances.

Leadership Activities

Platoon NCO Performance Ratings (NCO Performance). These ratings were designed to assess the cadet's ability to deal with people and situations while in leadership positions in day-to-day camp activities. Using a 7-point scale, the platoon NCO evaluator rated along ten dimensions. They were:

Delegates authority effectively.

Keeps subordinates informed.

Keeps troops motivated.

Utilizes subordinates effectively.

Directs and maintains control of subordinates.

Maintains military bearing and manner.

Possesses physical and mental endurance for effective leadership.

Responds quickly and appropriately to a changed situation.

Sets the example.

Shows initiative in accomplishing assigned duties.

Platoon Officer Evaluator Performance Ratings (POE Performance). These ratings were designed to assess the cadet's ability to handle people and situations while in leadership positions as above. Using a 7-point scale, the POE rated cadets on ten performance characteristics. These were:

Responds quickly and appropriately to a changed situation.

Directs and maintains control of subordinates.

Thinks on his feet.

Keeps troops organized and initiates action forcefully.

Keeps troops motivated.

Obtains cooperation from subordinates.

Maintains emotional control under stress.

Shows ability to anticipate problems.

Maintains communications with subordinates.

Makes careful and systematic plans.

Situations. These ratings indicate the willingness of the POE to have the cadet represent or act in his stead in job situations with varied task requirements, based on the leadership positions. The POE evaluated each cadet on six independent statements. These ratings, again based on a 7-point scale, were:

Represent your viewpoint and make decisions in your name on an extremely important mission.

Be responsible in an emergency situation calling for great initiative, coolness, and dominant leadership.

Prepare plans for all aspects of a large undertaking (a task requiring considerable initiative, coolness, and judgment).

Represent you in a meeting where considerable tact and ability to get along with people are required.

Work on an assignment requiring great attention to detail and routine.

Have him lead a unit under your command.

Personal Characteristics. This rating evaluated the cadet's personal characteristics related to effective leadership, ability to think under stress, take action in emergencies and proceed under general conditions of duress. The POE rated cadets on a 7-point scale on eight separate dimensions. They were:

Takes appropriate action on his own responsibility.

Calm and cool under pressure.

Gets a job done effectively, follows through to the final desired results.

Knows how to handle personnel.

Appearance and bearing cause people to react positively.

Gives and executers orders firmly without creating a negative attitude.

Takes speedy and appropriate action.

Shows common sense and good judgment.

Specific Performance Measures

Orienteering. Orienteering is a specific camp activity requiring both physical and cognitive abilities. There are three kinds of orienteering--free style, line, and score. Free-style orienteering is a time-distance combination where the goal is to go from point A to point B in the least amount of time. Line orienteering emphasizes only land navigational (compass and map reading) skills by requiring a specific route be followed in getting from point A to point B. Score orienteering combines problem solving ability with land navigational skills. In all three types of orienteering, check points, or stations, have differential

point value. The goal is to accrue as many points as possible in the time allowed by going to those stations having the highest point value.

Military Stakes. This test, given in the last week of camp, measures the cadet's ability to apply individual military skills in different situations. While it is a performance measure, cognitive abilities and motivational levels may influences scores received since cadets can learn and practice during off-hours for these tests. Information needed is contained in field manuals available in garrison libraries.

Field Problems Test (FPT). The test evaluates the cadet's leadership aptitude in a number of standardized military situations. Each station requires the cadet to demonstrate leadership abilities under simulated combat conditions. The FPT consists of 12 stations. Each cadet was designated leader in three problems, during which time his/her performance was evaluated by station graders. Female cadets were not allowed to be leaders in stations requiring offensive tactics.

Peer Ratings

Another evaluation collected during summer camp was peer ratings. These ratings were administered during the fifth week of camp. Cadets were presented a list of their platoon members and were instructed:

"Considering all you know about each of your fellow cadets, select the 10 you would be most willing to serve under if one person from your platoon were placed in charge of your unit; select the 10 cadets you would be least willing to serve under."

Further, cadets were instructed not to nominate the same person for both high and low preferences. At the same time, cadets were not to nominate themselves for high or low.

Analysis. Male and female scores were computed for all performance variables. Complete intercorrelation matrixes were were also computed. Differences between male and female means for these performance variables were tested with the t-test. Differences between correlation coefficients were also computed to investigate possible differences in rating processes or schemas which raters may have applied to male and female cadets.

Peer ratings were analyzed by using four rater/ratee groups. They were males rating males, males rating females, females rating males, and females rating females. To determine if the sex of the rater and ratee interacted, the four peer scores were subjected to a 2 x 2 (sex of rater by sex of ratee) unweighted means analysis of variance, with repeated measures across raters.

The method used for scoring ratings allowed for no significant differences between raters but did allow opportunity for either a ratee or interaction term to be significant. A statistically significant interaction term would be strongly suggestive of a rating bias. A significant

ratee effect could be the result of real sex differences, or a rating bias shared by rating groups, or both.

RESULTS

Performance Variables. Table 1 presents means and standard deviations for males and females, as well as t-values from testing for differences, for the nine performance variables. Female cadets were rated significantly lower than male cadets on POE performance, situations, and personal characteristics ratings. Females received significantly lower scores on all three orienteering exercises. Male cadets scored significantly lower than females on military stakes. No differences based on sex obtained for either NCO performance or FPT scores.

Table 2 presents the complete intercorrelation matrix of all performance variables for males and females. Most correlation coefficients are significantly different from zero; those that are not underlined. There are no real differences between coefficients as a function of sex of cadet, which indicates that raters used the same criteria to evaluate both male and female cadets. For all cadets, intercorrelations among NCO, POE, situations and personal characteristics ratings are strongly clustered. Performance scores--FPT, Military Stakes and the three orienteering exercises--appear to compose individual factors, since each test seems unique with little common variance with the leadership ratings.

Peer Ratings. In the uppper portion of Table 3, means and standard deviations for the four peer rater/ratee groups are presented. The lower portion of the table presents summary statistics from the two-way analysis of variance. A significant difference was found for all class members and sex of ratee ($F = 73.65$, d.f. = 1,946, $p < .05$), with female cadets rated lower than males by all raters.

Table 4 presents correlation coefficients between peer rating scores and the performance variables. While most of the coefficients significantly differ from zero, the other coefficients are underlined.

Two significant differences between correlation coefficients were: (1) between male and female peer scores given by females and POE performance ratings; and (2) between male and female peer scores given by males and POE performance ratings. The two differences suggest that the POE may use different standards in evaluating cadets than the cadets use when evaluating their peers. However, due to the number of coefficients tested, these differences probably should be interpreted with caution.

DISCUSSION

Females attending the 1975 ROTC Advanced Summer Camp at Ft. Bragg, N.C., systematically received lower scores than their male counterparts on both performance ratings and scores and on peer ratings. There are a number of reasons that could account for these findings.

Table 1

MALE AND FEMALE MEANS, STANDARD DEVIATIONS AND T-VALUES
ON PERFORMANCE VARIABLES

Variables	Males (n = 392) $\bar{X}$	σ	Females (n = 83) $\bar{X}$	σ	T-value
NCO Performance	100.79	19.76	96.42	20.00	.82
POE Performance	101.10	19.30	93.94	21.46	3.00 *
Situations	101.02	19.24	93.52	21.20	3.16 *
Personal Charac.	101.45	19.21	92.51	21.04	3.78 *
Free-Style Orient.	103.34	18.83	87.58	18.96	6.90 *
Line Orienteering	101.79	19.19	92.78	21.38	3.80 *
Score Orienteering	103.94	19.29	84.70	16.45	8.44 *
Military Stakes	98.43	17.46	110.23	19.60	-5.46 a*
Field Problems	99.73	5.96	99.14	6.34	.81

* $p < .05$

[a] Negative sign indicates females scored higher than males

The most obvious explanation is that women enrolled in ROTC and attending summer camp are less capable than males. One way to investigate this would be to institute a pre-camp measure which would serve as a baseline against which to measure progress. However, even with such a measure, other considerations may question such a conclusion. The two different and unequal training programs may have exaggerated any existing differences already there in ability as a function of sex when cadets arrived at camp. That is, if initial ability differences existed between male and female cadets, the separate training program may well have increased these differences.

Another factor contributing to differences in scores received by male and female cadets may have been bias on the part of the POE. The platoon officer evaluator was usually a young male company grade officer with opinions about the suitability of women in the Army.

Anecdotal evidence suggests that these young men, usually captains, do not like the idea of women in combat or combat support roles. One company commander said that if women had been put in his company, he would have asked for a transfer.

Table 2

INTERCORRELATION MATRIX OF PERFORMANCE VARIABLES FOR MALES (N = 392)/FEMALES (N = 83)

	POE Performance	Situations	Personal Charact.	Free-Style Orienteering	Line Orienteering	Score Orienteering	Military Stakes	Field Problems
NCO Perform.	80/80[a]	73/79	77/83	24/39	14/16[b]	19/22	16/32	27/29
POE Performance		82/89	85/87	24/38	18/27	20/20	20/33	27/38
Situations			93/94	25/39	20/20	19/22	21/35	31/43
Personal Characteristics				26/39	20/15	23/23	20/35	32/39
Free-Style Orienteering					17/27	23/11	25/26	16/04
Line Orienteering						15/16	11/31	12/18
Score Orienteering							17/15	11/17
Military Stakes								23/40

[a] decimals have been deleted

[b] underlined values not significant; all others are significantly different from zero, $p < .05$

Table 3

PEER RATING MEANS AND STANDARD DEVIATIONS

Peer Rating Score	Mean	S.D.
Males rating Males	2.06	.39
Males rating Females	1.71	.35
Females rating Males	2.03	.41
Females rating Females	1.80	.44

Summary Statisitics for Analysis of Variance

Source of Variation	SS	DF	MS	F
Sex of Rater	.14	1	.14	.90
Sex of Ratee	11.78	1	11.78	73.65*
Rater by Ratee	.50	1	.50	3.16
Error within Cells	151.33	946	.16	

* $p < .05$

The officers were instructed to make independent evaluations of performance in general, in different situations, and along personal characteristic dimensions. Ratings were to be based only on behavioral observations made during integrated training.

As the complete intercorrelation matrix shows in Table 2, ratings are highly intercorrelated and, quite obviously, not independent measures. The lack of significant differences between males and females, along with significant correlations within the female matrix, also suggests, however, that the POEs discriminated among females as well as among males. What seems to be happening is that, once the POE established the lower baseline, i. e., lower means, for the females, he can still discern between females. Interestingly, NCOs, generally older and more experienced males, did not establish this lower baseline for females, but did use similar rating criteria as the POE. The NCO thus appears to be less biased than the POE, perhaps because female cadets, who will be future officers, do not threaten them significantly.

Table 4

INTERCORRELATIONS OF PEER RATING SCORES AND PERFORMANCE VARIABLES

Variables	Female Ratee	Male Ratee
	Female Rater (n = 83)	
NCO Performance	47[a]	55
POE Performance	37	58
Situations	44	51
Personal Characteristics	45	54
Free-Style Orienteering	07[b]	09
Line Orienteering	18	08
Score Orienteering	18	12
Military Stakes	30	12
Field Problems	35	31
	Male Rater (n = 392)	
NCO Performance	61	63
POE Performance	49	66
Situations	65	64
Personal Characteristics	61	67
Free Style Orienteering	22	20
Line Orienteering	10	16
Score Orienteering	23	18
Military Stakes	26	20
Field Problems	34	32

[a] decimal points have been deleted

[b] underlined values are not significantly different from zero

The three kinds of orienteering do reflect true performance differences. These scores are based on combinations of time and distance measures. Differences in the physical training (PT) programs could have contributed to these differences, since running between checkpoints was essential for a good orienteering score.

An interesting point is that women out-scored men at the military stakes. The stakes were a series of written exercises in which cadets responded to a scenario with the most appropriate course of action. The tests heavily relied on cognitive abilities and probably tapped motivational levels as well, since cadets could, if they so desired, study and review material contained in field manuals prior to these tests.

No performance differences were obtained for field problem tests. Again, where pure physical endurance was not required, females were evaluated equally with males.

However, the exercises for both military stakes and the Field Problems Test (FPT) differed to some extent between males and females. That is, since females received no offensive tactical training, they were specifically not tested on such material, while males were. Therefore, since the problems were not the same, comparisons between scores are difficult to make.

Male and female cadets systematically rated females lower than males on peer ratings, a finding found elsewhere (Mohr and Downey, 1977). While these ratings have been used historically to evaluate leadership potential in the military (Hollander, 1965; Stodgill, 1974), the wording of the ratings employed in summer camp emphasized preferences as the criteria for nominations. Instructions stated: ". . . select the 10 (cadets) you would most be willing to serve under. . . ."

There are a number of problems in interpreting results from this type of rating. Since ROTC Advanced Camp is a simulated combat training environment, a response set of choosing a combat leader versus a technical/ managerial one (Helme, Willemin, & Grafton, 1974), may have been established inadvertently. Since women are unable to serve in the combat arms or combat support, the selection of males for this type of leader may reflect environmental constraints, realistically.

Another confounding may have resulted from the separate training programs for men and women. Since the females had a less rigorous training program, males may have felt resentment toward them. When asked to state preferences for a leader, males may have chosen other males from hostility or a feeling that females were incapable of carrying a fair share of the work. The females themselves may have shared this feeling since they were restricted from engaging in the most "military" i. e., offensive tactics, of the training.

A further confounding in the peer ratings arises from the recognition that there may be some overlap between potential and preference. That is, there may be occasions when one would prefer a leader with

potential. On the other hand, there may be occasions when one would prefer a leader for reasons other than potentiality. This issue of overlap clouds what dimension is actually being evaluated by the cadet.

To clarify whether women are considered for leadership roles, changes in instructions should be made in future summer camps specifying selection of combat leaders versus technical/managerial ones (Helme et al., 1974). Instructions could also specify selection on the basis of actual ability, future potential, and/or current preferences. Until then, results from peer ratings administered during summer camp should be used cautiously, if at all, since there are limited data on the reliability and validity of these ratings for females, and minority group members.

Major conclusions from the data would seem to pose necessary changes in the ROTC Advanced Summer Camp program of instruction, as well as caution about the use of sumer camp results. Problems associated with separate training programs for all cadets who are competing for the same jobs are obvious. A group receiving inferior or incomplete training program will suffer. Women attending the 1975 summer camp were such a group. The women were disadvantaged when competing with males whose superior and more complete training made them no longer "peers." A basic purpose of any training program is to equalize disparate levels of effective performance. With two training programs at summer camp, the initial desparate levels were exaggerated, with women increasingly below the level of men.

It is encouraging to note that the 1976 camps gave the same training to both sexes. From a research standpoint, it is important to develop measures of background and readiness prior to Advanced Camp. The extent of improvement for both sexes then can be evaluated, and training designed to equalize the level of competence as nearly as possible. The findings on Military Stakes and FPT offer some promise in this regard.

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